ABSTRACT OF THE INVENTION

A method and apparatus for significantly reducing the biological load on consumer products such as food products, botanicals, cosmetic ingredients and medical products is disclosed. The method involves applying a continuous stream of oxygen-containing, i.e., O_x, gas to a material in a sealed biological burden reduction chamber. The continuous stream of O_x gas is prepared in an O_x generation cell, which contains a means for generating the O_x gas at a pressure less than 20 lbs/in^2 using, for example, one or more of the following: corona discharge, high frequency electrical discharge, ultraviolet light, x-ray, radioactive isotope and electric beam. The apparatus contains:

(a) a biological burden reduction chamber;.

(b) a vacuum pump coupled to the biological burden reduction chamber;

(c) an 0_x generation cell, wherein the 0_x generation cell contains an 0_x generator capable of generating 0_x at a pressure less than 20 lbs/in^2;

(d) a first control valve coupled to the biological burden reduction chamber and the 0_x generation cell, wherein the first control valve is capable of permitting 0_x to be drawn from the 0_x generation cell into the biological burden reduction chamber; and

(e) a second control valve coupled to the biological burden reduction chamber, wherein the second control valve is capable of withdrawing 0_x contained within the biological burden reduction chamber.